

CLAIMS

1. An arrangement for providing a user station with access to
5 (a) service providing network(s) over a wireless radio access network,
c h a r a c t e r i z e d i n
that it comprises a radio access network control node (RANCN; 3)
acting as a gateway node between access stations (AP; HBS;
10 2A,2B;4) and the service providing network(s), and in that it
comprises connection processing means for adapting service
providing network transport protocols such that the user station
(1A,1B;1) can access the service providing network services over
the radio interface of the wireless radio access network, that
15 the radio access network support node (RANCN; 3) reuses a set of
service network transport protocols for communication over the
radio access network, the reused protocols being tunneled using
the Internet Protocol (IP) through an access station (AP; HBS;
2A,2B;4) connected to the radio access network control node
20 (RANCN; 3).
2. An arrangement according to claim 1,
c h a r a c t e r i z e d i n
that the connection processing means converts/maps service
25 network access bearers into transport protocol packets of the
wireless radio access network.
3. An arrangement according to claim 1 or 2,
c h a r a c t e r i z e d i n
30 that the reused protocol stacks are reused transparently over the
radio access network air interface.
4. An arrangement at least according to claim 2,

c h a r a c t e r i z e d i n
that it supports multiple access bearer connections of different
bit rates, types, bandwidth and/or QoS.

- 5 5. An arrangement according to claim 4,
c h a r a c t e r i z e d i n
that it is capable of establishing one or more access bearers
simultaneously wherein the access bearers are configured for
different types of media services.

- 10 6. An arrangement according to claim 5,
c h a r a c t e r i z e d i n
that the access bearer(s) carry(ies) connections for a plurality
of services of its associated type(s).

- 15 7. An arrangement at least according to claim 2,
c h a r a c t e r i z e d i n
that the various services provided over access bearers comprise
circuit switched as well as packet switched bearers.

- 20 8. An arrangement according to any one of the preceding
claims,
c h a r a c t e r i z e d i n
that the service providing network is a 3G network, a BRAS IP
25 services provider network, a video on demand network or a live
TV network.

9. An arrangement according to claim 8,
c h a r a c t e r i z e d i n
30 that the service providing network is a UMTS/WCDMA or CDMA 2000.

10. An arrangement according to any one of the preceding
claims,

c h a r a c t e r i z e d i n

that the over IP reused protocols are W-CDMA L3 RRC, L2 RLC/MAC.

11. An arrangement according to any one of the preceding
5 claims,

c h a r a c t e r i z e d i n

that with the adapted reused protocols multiple access bearers
are set up simultaneously.

12. An arrangement according to any one of the preceding
10 claims,

c h a r a c t e r i z e d i n

that it reuses the 3GPP RRC and RLC/MAC protocols modified to
provide access to a UMTS core network via the Iu-interface.

13. An arrangement according to any one of the preceding
15 claims,

c h a r a c t e r i z e d i n

that it dynamically establishes a number of access bearers to a
20 user station (1A,1B) connected to the arrangement (RANCN).

14. An arrangement according to any one of the preceding
claims,

c h a r a c t e r i z e d i n

25 that it provides a user station comprising a user equipment
comprising a PC, Laptop, telephone etc. with access to
UMTS/CDMA/BRAS/Video on demand/Live TV services over Bluetooth,
the access station comprising a Home Base Station (HBS).

15. An arrangement according to any one of claims 1-13,

c h a r a c t e r i z e d i n

30 that it provides a user station with the possibility to access
UMTS/CDMA/BRAS/Video on demand/Live TV service over the IEEE

802.16a/e, e.g. is a WiMAX or a network using OFDM based radio technology, or a WLAN.

16. An arrangement according to claim 14 or 15,

5 c h a r a c t e r i z e d i n

that it controls set-up and release of access bearers by reuse of the RLC/MAC and RRC protocols run over UDP/IP over radio interfaces, e.g. meeting IEEE 802.X requirements, such as Bluetooth, WiMAX, WLAN, between the access station and the user
10 station, and over any transport protocol between RANCN and the access station, e.g. a Bluetooth HBS or a WLAN AP.

17. An arrangement according to any one of the preceding claims,

15 c h a r a c t e r i z e d i n

that it comprises a gateway node between access stations (AP:s, HBS:s) of the wireless radio access network, e.g. Bluetooth, WiMAX, WLAN and the Iu-interface of UMTS, an access station (AP, HBS) (2A,2B;4) relaying RRC, RLC/MAC over any transport protocol
20 used between the access station (2A,2B;4) and the (RANCN; 3).

18. An arrangement according to claim 14,

c h a r a c t e r i z e d i n

that UDP/IP and the Bluetooth or WLAN radio interface is used for
25 RRC/RLC/MAC between service network and RANCN (3), and RANCN (3) and user station (1A,1B) respectively.

19. An arrangement according to any one of claims 1-18,

c h a r a c t e r i z e d i n

30 that storing means are provided in a radio access network control node (RANCN 3) for collecting, holding and sorting identity related information of user stations, and in that for user stations currently being in an area or a location

fulfilling some given criteria, or e.g. being in a similar environment as far as service offering or tariff setting is concerned, information thereon is distributed to such mobile user stations having indicated that they want information about each other and that they allow information to be distributed to one another.

20. An arrangement according to claim 19,
c h a r a c t e r i z e d i n

that several RANCN:s exchange identity related information about user stations currently in areas or locations in which certain criteria are met, e.g. in areas or locations with similar properties, e.g. as far as charging is concerned.

21. A method for providing a user station with access to services of a service providing network over a wireless radio access network,
c h a r a c t e r i z e d i n
that it comprises the steps of:

- establishing a connection between the user station and an access station over the wireless radio access network;
- initiating/establishing an IP session between the user station and a radio access network control node (RANCN);
- adapting control and user plane transport protocols of the service providing network to transport protocols of the wireless radio access network,
- using the adapted service network transport protocols over the radio interface of the wireless radio access network.

22. A method according to claim 21,
c h a r a c t e r i z e d i n
that the adapting step comprises:

- converting/mapping service network access bearers into transport packets of the wireless radio access network.

23. A method according to claim 22,

5 c h a r a c t e r i z e d i n

that the adapted and reused transport protocols of the service providing network are tunneled using the Internet Protocol (IP) through an access station (AP, HBS) connected to the radio access network control node (RANCN).

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24. A method according to claim 23,

c h a r a c t e r i z e d i n

that it comprises the step of:

- providing the user station dynamically with access to
15 various services over circuit and/or packet switched bearers of variable bandwidth, type and/or QoS.

25. A method according to claim 24,

c h a r a c t e r i z e d i n

20 that it comprises the step of:

- setting up multiple access bearers simultaneously.

26. A method according to any one of claims 21-25,

c h a r a c t e r i z e d i n

25 that service providing network is a 3GPP Network, UMTS, GPRS, CDMA 2000 etc.

27. A method according to any one of claims 21-26,

c h a r a c t e r i z e d i n

30 that the adapted, reused protocols are the 3GPP L2 RLC/MAC and L3 RRC protocols.

28. A method at least according to claim 21,

c h a r a c t e r i z e d i n
that the adapted/reused RRC, RLC/MAC protocols are used to
provide access to the UMTS core network via the Iu-interface.

5 29. A method according to any one of claims 27 or 28,
c h a r a c t e r i z e d i n
that it comprises the step of:
- controlling in the RANCN, set-up and release of access
bearers by adapting and reusing the RRC,RLC/MAC and
10 protocols such that they can run over UDP/IP over the
interface protocol between the user station and the access
station.

15 30. A method according to any one of claims 21-29,
c h a r a c t e r i z e d i n
that it comprises the step of:
- dynamically establishing a number of access bearers to the
user station connected to the RANCN.

20 31. A method according to any one of claims 21-30,
c h a r a c t e r i z e d i n
that the wireless radio access network is Bluetooth, the access
station being a Home Base Station (HBS).

25 32. A method according to any one of claims 21-30,
c h a r a c t e r i z e d i n
that the wireless radio access network is WiMAX or a wireless
radio access network implementing an OFDM based radio technology
or a WLAN.